Early pathogenesis of classical swine fever virus (CSFV) strains in Danish pigs

Host–virus interactions play an important role for the clinical outcome of classical swine fever virus (CSFV) infections in pigs. Strain virulence, host characteristics and environment are all factors that markedly influence disease severity. We tested CSFV strains of varying virulence in an experimental set-up, reducing the influence of host and environmental factors. Thus, weaner pigs were inoculated with one of 4 CSFV strains in order to compare the pathogenesis for a 3-week-period after infection. CSFV strains selected were 2 new and 2 previously characterized. None of these strains had been tested in Danish outbred pigs before.

Clinical observations grouped the infected pigs into two different categories reflecting either non-specific, mainly gastrointestinal, problems, or severe disease including high fever within the first week after inoculation. Gross-pathological findings varied between strains, however, lymphoid atrophy and growth retardation represented a consistent finding for all 4 strains. Virus distribution, viral load and in particular virus persistence differed, but supported present practice that recommends lymphoid tissue, most optimal tonsil and lymph nodes, as target material to be applied for early laboratory diagnosis.

The present study demonstrated constraints associated with early detection of infections with CSFV strains of low virulence. Since neither clinical symptoms nor pathological lesions observed with these strains constituted characteristic signs of CSF, the risk of neglecting a CSF suspicion is immediate. Therefore, topical information on new outbreaks and continuous enhancement of an efficient surveillance system is of great importance to prevent further spread of CSF within the pig population.

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